Fieldwork enquiry question: To what extent does environmental quality and land use change over time and space in central/inner Norwich?

Hypothesis and aims:

Environmental quality will increase as you travel along the transect from site 1 in the inner city to site 10 in the CBD.
Land use will change from residential to commercial as you travel along the transect from site 1 in the inner city to site 10 in the CBD.
Over time, the land use will have changed with fewer open spaces.

Reason location is suitable for human (urban) enquiry:

Norwich is a city with approximately 213,00 residents (2011 census). In November 2006 it was voted the greenest city in the UK. Historically Norwich's industry has been manufacturing but in the 1980 and 1990s it changed to a service-based economy.

Method 1: Land use survey

Sampling method: Stratified sampling fixed sites along a transect)
Sample size: 10
Description:. At each location take a look at all surrounding buildings and code them using RICEPOTS onto a map.

Strengths
- Full representation of all surrounding buildings
- One person recording the results therefore consistent.
- Covers major building types
- Taken at all 10 sites therefore detailed.

Weaknesses
- Some building may not be being used therefore an additional code is needed.
- Some buildings may have two uses therefore only taking the code of the bottom tier isn't representative.

Method 3: Questionnaires

Sampling method: Stratified random sampling (only locals were questioned however they were chosen randomly)
Sample size: 30+ people
Description: Create a questionnaire which focuses on finding out the environmental quality of Norwich from the locals perspective. When in Norwich ask the questionnaire to a sample size of at least 30 local people.

Strengths
-The method is a good way to collect data about.
- The data collected can easily be collated and graphed to show the common opinions of the locals.
- They are a cost efficient way of collecting quantitative data.
- They are a practical way to gather people's opinions.

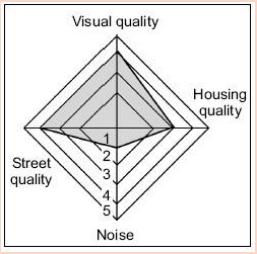
Weaknesses
-People may lie especially if they are given options and their choice is not there.
-Carrying out face to face questionnaires can be time consuming so a large sample size cannot be obtained in the time.

Risk assessment

Busy roads	Risk of accident by walking along and crossing busy roads in the town.	Students told to only cross the road at the crossings and walk in pairs encase of accident.
Injury	Risk of injuring through walking around the town such as tripping.	Students told to walk around the town in pairs or more. Each group carried a first aid kit and so did the teacher.
General public	Risk of verbal abuse from members of the public. Also risk of abduction.	Students told to walk around in pairs or more. Meeting point given to students to meet at regular times and a head count to be done.

Presentation method: Environmental Quality Radar graph

Strengths	-Can be added to a map -Show change over space -Shows data for the different categories -Can extrapolate raw data
Weaknesses	- Hard to spot anomalies
Alternative presentation techniques	Located bar graphs on a map of Norwich to visually show the EQ where the streets are. Using GIS to create a choropleth map.



Paper3

Urban fieldwork- Norwich

Method 2: Environmental Quality Survey

Sampling method: systematic sampling (fixed sites along a transect)
Sample size: 10
Description: Create a table which has a scale from 1-5. include the factors to be assessed in the table. Visit each site and score the factors from 1-5 with 1 being negative, 5 being positive.

Strengths
-Sites were chosen every 250m
- Using a score system which goes from 1-5 enabled the negative aspects of sites to be clearly shown.
-A range of factors was assessed at each site.

Weaknesses
-The score given is based on an opinion- more than one persons opinion and an average score given would have been more reliable.
-Lack of sites surveyed- so conclusion based on a small area.
- Too many factors, some overlapped.

Methods carried out

1. Land use survey	**Aim:** To investigate the change of land use in Norwich from the CBD to the inner city. Categories follow the RICEPOTS to determine land use.
2. Environmental quality survey (bi-polar analysis)	**Aim:** To investigate environmental quality of Norwich. Factors such as noise, density, cleanliness and quality of buildings were scored.
3. Questionnaires	**Aim:** To investigate the opinions of the locals in terms of environmental quality. Therefore discovering the quality of the area from their perspective.

Evaluation

Sample size	Only one transect was taken out of the inner city - thus the conclusions are based on a small area.
Bias	All of the methods were open to some kind of bias. The EQS is based on opinion and human error could have incorrectly categorised the buildings for the land use survey. The questionnaires were only taken during the day so include few working people or young people.

Conclusion

It is evident from the results that the hypothesis can be partly accepted and rejected. Land use does mostly change from residential to commercial as you travel in to the city.
Environmental quality decreases as you travel in to the city with the exception of site 4 where a run-down shopping area has a lower environmental quality.

Results

1. Land use survey	Land use changed from 100% commercial in the CBD to 90% residential in the inner city.
2. Environmental Quality Survey	Overall environmental quality increased from the CBD out to the inner city. Age of buildings got newer, noise level lowered, the cleanliness improved, the density of building decreased and the quality of building stayed about the same as you travelled out of the CBD.
3. Questionnaires	People thought the CBD area was dirty in places and run-down. This seemed to only be representative of two areas however it was the areas the public commented on. 57% of people thought the area around site 8 had a high environmental quality because it had some open space despite being in the CBD. No people thought the environmental quality at site 4 was high with over 80% scoring it as poor.

Fieldwork enquiry question: How and why does the shape of the beach at Cromer change along a stretch of coastline?

Hypothesis and aims:

Does the beach profile change along the stretch of Cromer coastline? The beach profile will increase in gradient between the groynes heading west to east along the stretch of Cromer coastline.

Does the sediment size and shape change along the stretch of Cromer coastline? The sediment size decreases along the stretch of Cromer coastline.

Reason location is suitable for physical enquiry:

The location was chosen as Cromer beach is on a stretch of coastline that is affected by the process of longshore drift and groynes are in place. The area is also easily accessible by coach from our school.

Method 1: Beach profile

Sampling method: systematic sampling (fixed intervals)
Sample size: 3 sites (twice between two groynes and away from the groynes).
Description: Person A stands by the sea holding a ranging pole and person B holds a second ranging pole up the beach. The location is determined by any chance in angle. The angle between matching markers on each ranging pole is measured using a clinometer. Repeat this process up the beach.

Strengths
-The method of data collection is simple to carry out.
-Systematic sampling is simple and has good coverage of the study area.

Weaknesses
-There may be some user error when taking readings with a clinometer.
-Ranging poles need to be held straight and prevented from sinking into the sediment, otherwise an inaccurate measurement will be taken.

Method 3: Field sketch

Description: A sketch was drawn at each location. This sketch was annotated to include explanation of feature formation.

Strengths
- Detail of features can be recorded while viewed.
-Simple method of data collection with little equipment needed.

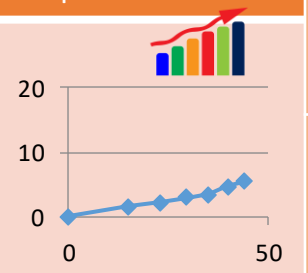
Weaknesses
-Drawing quality may be poor thereby making it difficult for others to interpret.
-Annotations may be more like labels and basic description therefore detail is lost.

Risk assessment

Tides	Risk of powerful waves, creating risk of drowning.	Students told not to go too close to the shore and to stay out of the sea. Consultation of tide timetables.
Cliff collapse	Danger of cliff collapse and falling rocks.	Avoid walking near the foot of cliff encase of cliff collapse. Students warned of this and kept well away from the back of the beach.
Weather	Wet weather is dangerous due to slippery groynes etc. Hot weather also poses the risk of dehydration.	Students advised to bring plenty of water and sun cream if the weather forecast is hot. If the weather forecast is wet, students are advised to bring appropriate clothing and footwear.

Presentation method: Line graph to show beach profile

Strengths	Can easily see change along the beach. Shows the inclines and declines in profile
Weaknesses	Not possible to locate. Difficult to read subtle changes in incline
Alternative presentation techniques	Located line graphs could have been used on a map of the beach to show where the most effective groynes were.



Paper 3
Physical fieldwork- Cromer

Method 2: Sediment analysis

Sampling method: systematic sampling (fixed intervals)
Sample size: 5 pebbles every 2m from the shore at 2 sites (away from and between the groynes)
Description: 5 pebbles were selected randomly every 2m up the beach. The length and width of each pebble was measured and compared it Power's chart to subjectively assess roundness.

Strengths
- A quadrat was used in order to ensure that the pebbles were selected at random.
-Simple method of data collection with little equipment needed.
-It is a quick and efficient way to collect the data needed.
- Using Power's chart makes the data more reliable.

Weaknesses
-Accessing the roundness using the chart is subjective.
-Power's chart is still subjective- to mitigate this more than one person could have assessed the roundness- however this is more time consuming.
- The sample size was small- making the data less accurate.

Methods carried out

1. Beach profile	**Aim:** To survey the shape (morphology) of the beach. To examine the effects of the management technique of groynes on beach processes and morphology.
2. Field sketch	**Aim:** To investigate the changes along the coastline.
3. Sediment analysis (shape and size)	**Aim:** To investigate the effect of the groynes on the sorting of beach material (groynes should cause an increase in attrition).

Evaluation

Sample size	A larger pebble sample size should have been collected. More than one site between the groynes should have also been used. Therefore conclusions are based on limited data.
Frequency of readings taken	A lack of readings taken away from the groynes means the results have been determined based on only one site - weakness of data collection could have had a greater impact on results.

Conclusion

It is evident from the results that longshore drift is being managed effectively by the groynes at Cromer. This is especially seen from the beach profile with the gradient being steeper between the groynes. It is also evident that longshore drift is taking place by the sediment size and roundness being smaller and smoother between the groynes suggesting attrition is taking place and the sediment is trapped within the groynes.

Results

1. Beach profile	The beach between the groynes had the steepest overall gradient. The beach measured with no groynes had the lowest overall gradient. Thus showing the groynes are effective at building up the beach.
2. Field sketch	The field sketch suggested a change a longer and steeper beach between the groynes
3. Sediment analysis (shape and size)	The sediment size was smaller between the groynes suggesting longshore drift is taking place and the groynes are trapping the sediment within them and attrition is taking place. The pebbles were 'rounder' between the groynes suggesting longshore drift is taking place and the groynes are trapping the sediment within them and attrition is taking place. This is what I expected to see because the groynes will have been placed here to prevent longshore drift occurring.